Theoretical and Experimental Investigations on Magnetoresistance at Microwave Frequencies

M. J. O. STRUTT

Eidgenössische Technische Hochschule

Zurich, Switzerland

The behavior of a Corbino disk of InSb in a static transverse magnetic field and a high frequency electric field is investigated. Measurements and analysis show that, owing to an internal magnetic field effect, the impedance of the Corbino disk shows a frequency dependence already at microwave frequencies. Measurements performed on rectangular samples show the same effect even more pronounced. It is concluded that in the case of medium to high Hall angles this effect may determine an upper frequency limit of Hall effect devices, which is considerably lower than the dielectric relaxation frequency.